CHAPTER 6
RIGGING TYPICAL A-21 LOADS

Section I
LOW-VELOCITY AIRDROP FROM PARATROOP DOOR

6-1. Description of Load

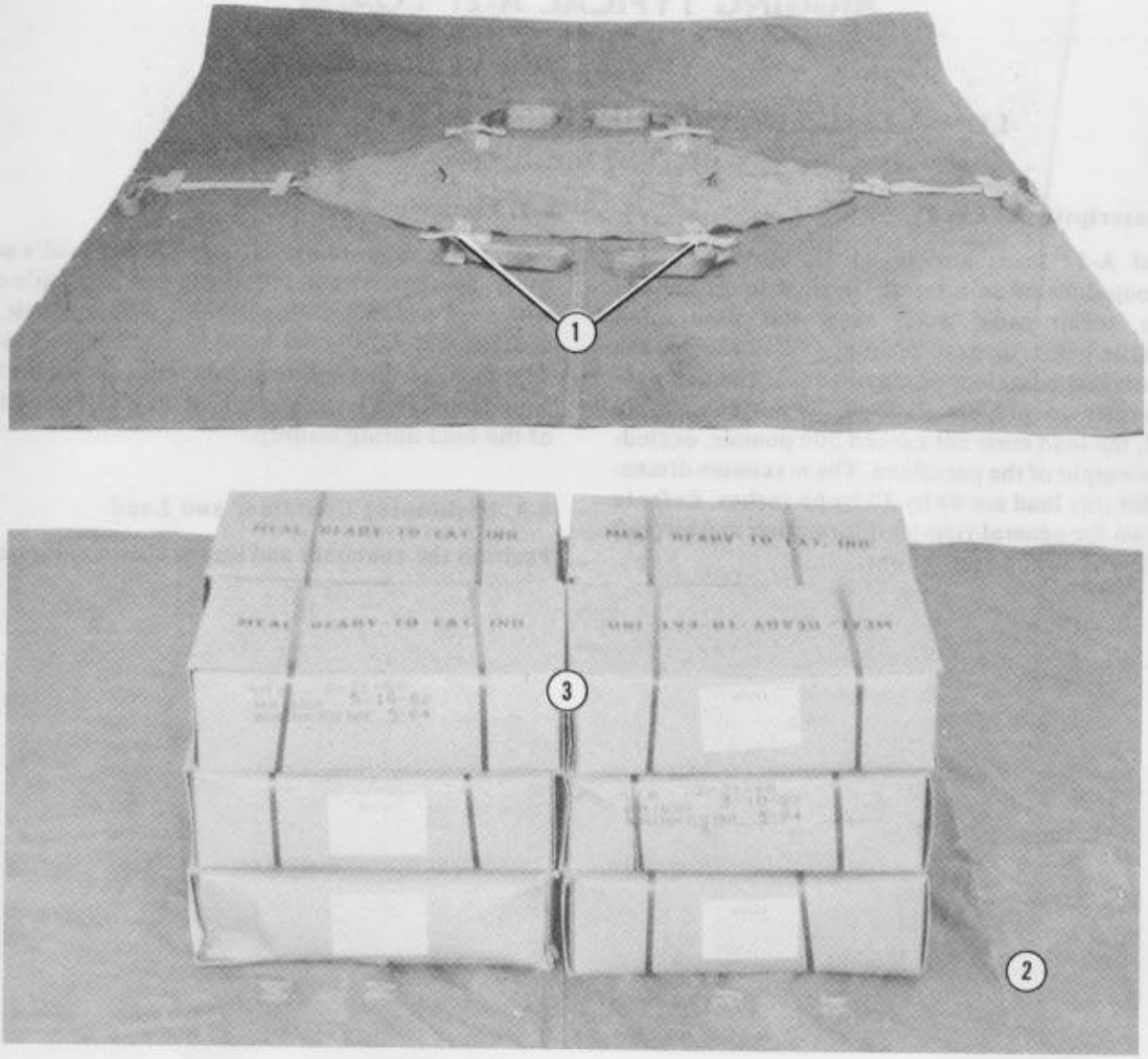
Typical A-21 loads are rigged for airdrop from a paratroop door of an aircraft. Typical loads include rations, repair parts, water cans, and other small nonfragile items. Items to be dropped may be rigged in their original container or may be repacked and padded further to prevent damage. When completely rigged, the load must not exceed 500 pounds, excluding the weight of the parachute. The maximum dimensions for this load are 48 by 30 by 66 inches. Refer to Part Two for general rigging information and aircraft considerations and restrictions.

6-2. Preparing Drop Items

Prepare the drop items according to the load's sensitivity. Some items will require no padding while other will need padding with cellulose wadding, felt, and honeycomb. All items should be padded well to prevent damage during airdrop. In addition, items must be in containers large enough so they will not fall out of the load during airdrop.

6-3. Positioning Container and Load

Position the container and load as shown in Figure 6-1.



(1) Lay the A-21 bag cover on a flat, dry surface with the strap keepers up. Center the sling assembly on the cover with the sewn webbing facing the cover. Route the straps through the strap keepers.

(2) Flip the cover and sling assembly over. The scuff pad should be on the bottom.

(3) Center the load on the cover and the sling assembly.

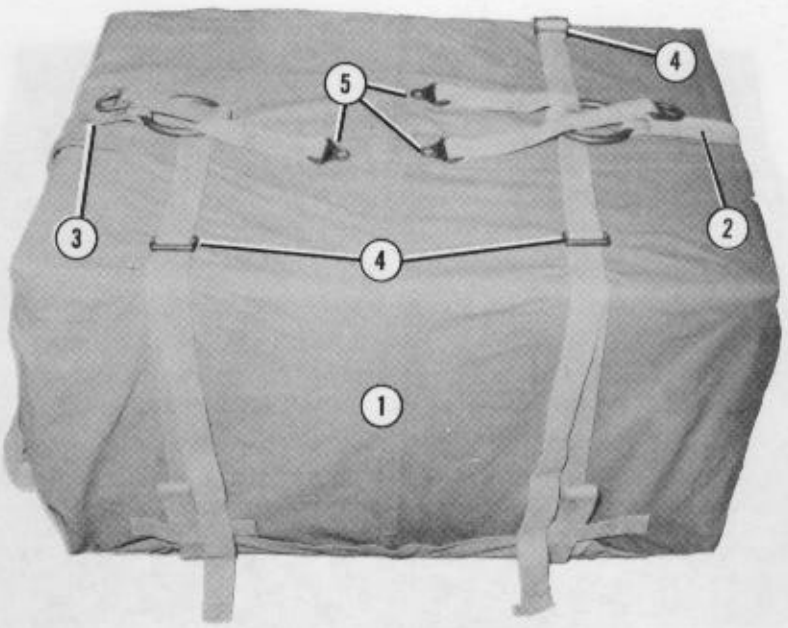
Note: One or two layers of honeycomb may be placed under the load, if needed.

Figure 6-1. Container and load positioned

6-4. Rigging Container

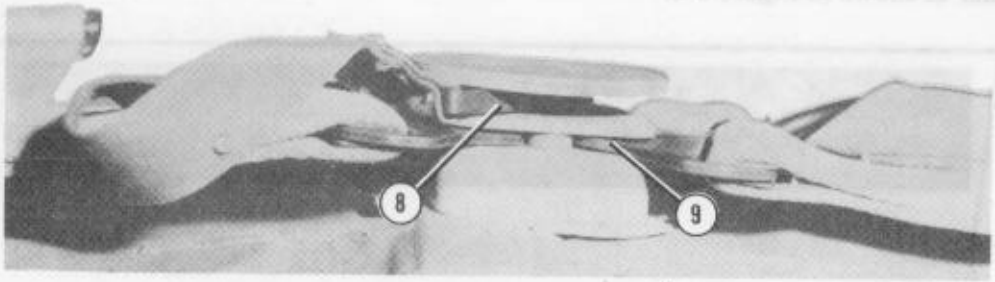
Rig the container as shown in Figure 6-2.

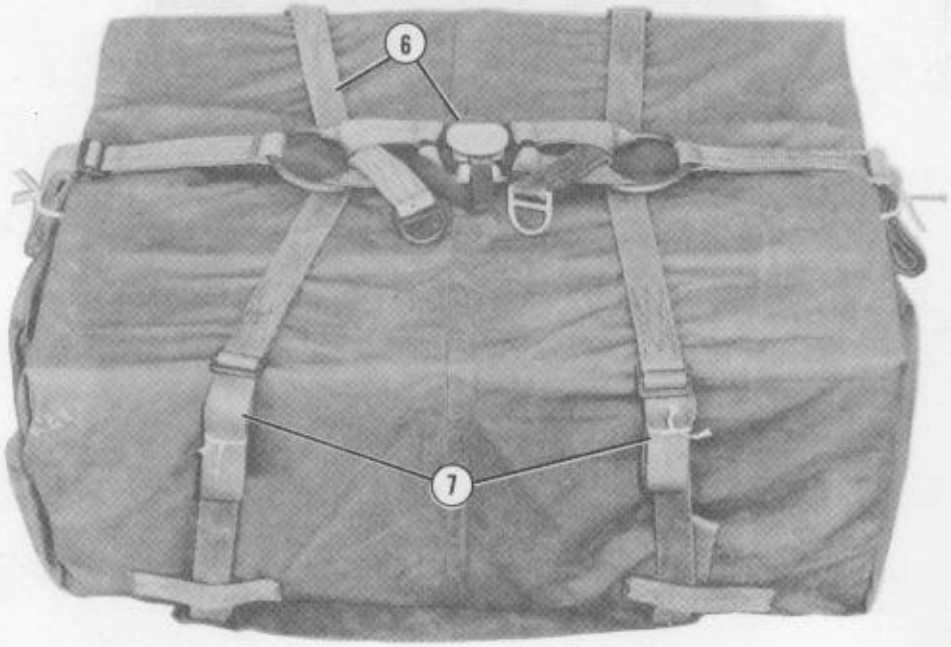
CAUTION
Make sure friction adapters are fastened properly according to Figure 1-3.



1. **Fold the cover over the load. Fold the excess cover under itself.**
2. **Loosely fit an O-ring strap on the right side long strap.**
3. **Repeat step 2 for the left side long strap.**
4. **Fit a quick-release strap on the two front straps and the rear right strap.**
5. **Pass the free end of the quick-release strap under the O-ring and up through the center of the O-ring. Lay the running end toward the center of the load. Repeat step for the other two quick-release straps. There should be a half twist inward when the straps are routed properly.**

Figure 6-2. Container rigged





(6) Center the strap with the quick-release assembly on the load. Route the strap over the left O-ring and down through the center. Fasten the friction adapter to the rear left strap. Make sure the friction adapter is fastened properly according to Figure 1-3.

(7) Make sure the quick-release assembly plungers are up. Insert the three quick-release strap lugs into the quick release. Pull slightly on each to make sure the plungers lock the straps in place.

(8) Insert the safety clip as shown in the insert.

(9) Tighten all straps. Make sure the quick-release assembly is centered on the load. Fold the excess strap, and tie or tape it in place according to Figure 1-3.

Figure 6-2. Container rigged (continued)

6-5. Installing Parachute

Install the T-10 modified cargo or the G-14 cargo parachute according to Paragraph 5-4.

6-6. Marking Rigged Load

Marked the rigged load according to Chapter 1. Compute the rigged load data.

6-7. Equipment Required

Use the equipment listed in Table 6-1 to rig the load as shown in Figure 6-3.

CAUTION

Make the final inspection required by Chapter 1 before the load leaves the rigging site. If the load includes hazardous material as defined in AFJMAN 24-204/TM 38-250, complete Shipper's Declaration for Dangerous Goods form.

RIGGED LOAD DATA	
Weight (without parachute)	200 - 500 pounds
Parachute	G-14

Figure 6-3. A-21 container load rigged for low-velocity paratroop door airdrop

Table 6-1. Equipment required for rigging the A-21 container load for low-velocity paratroop door airdrop

National Stock Number	Item	Quantity
1670-00-242-9173	Bag, cargo, A-21	1
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
1670-00-999-2658	Parachute, cargo, G-14	1
8105-00-285-4744	Sandbag	As required
8305-00-268-2411	Webbing, cotton, 1/4-in, type I	As required

Section II
LOW-VELOCITY AIRDROP FROM RAMP

6-8. Description of Load

Typical A-21 loads are rigged for drop off the ramp of an aircraft. Typical loads include rations, water cans, small parts, and other nonfragile supplies. The loads must be rigged with a skid board. The weight range for an A-21 load is 200 to 500 pounds, excluding the weight of the parachute.

6-9. Preparing Drop Items

Prepare the drop items according to the load's sensitivity. Some items will require no padding while others will require cellulose wadding, felt, and honeycomb. All items should be padded well to prevent damage during airdrop.

6-10. Preparing Skid Board

Prepare a skid board as shown in Figure 6-4.

6-11. Positioning Container and Load

Position the container and load according to paragraph 6-3.

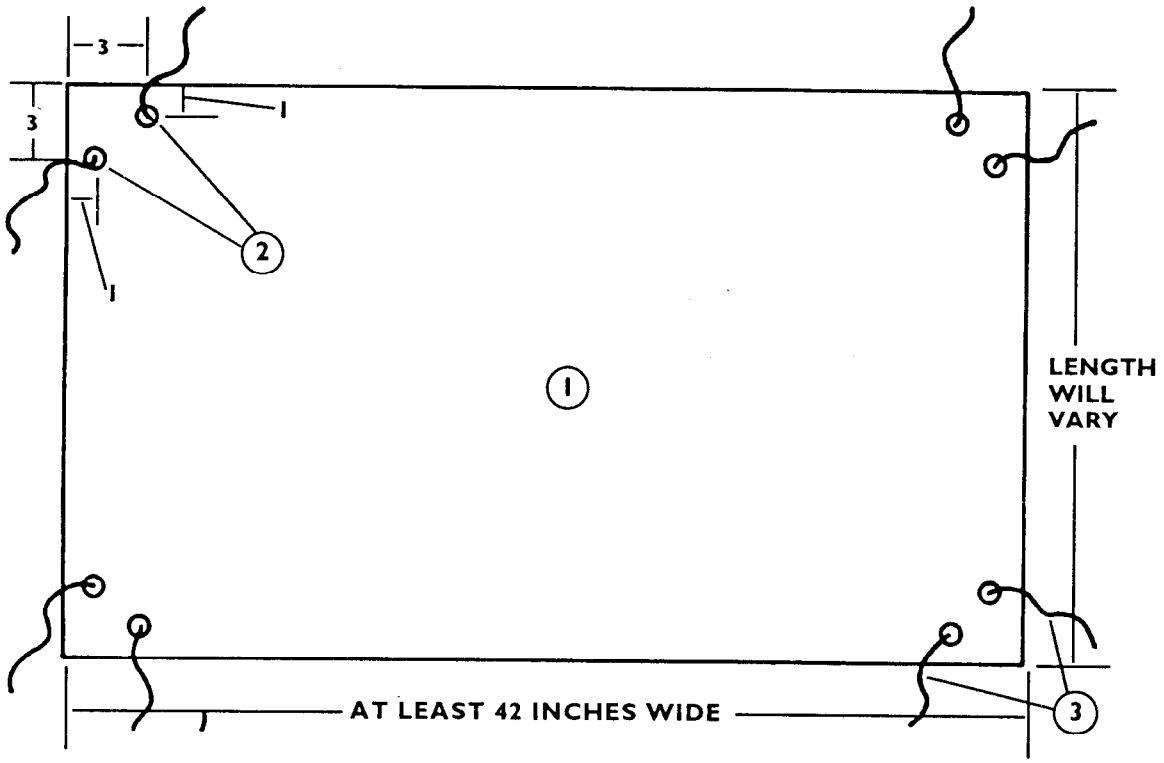
6-12. Rigging Container

Rig the container according to paragraph 6-4.

6-13. Securing Skid Board

Secure the skid board to the load as shown in Figure 6-5.

Notes: 1. This drawing is not drawn to scale.
2. All dimensions are given in inches.



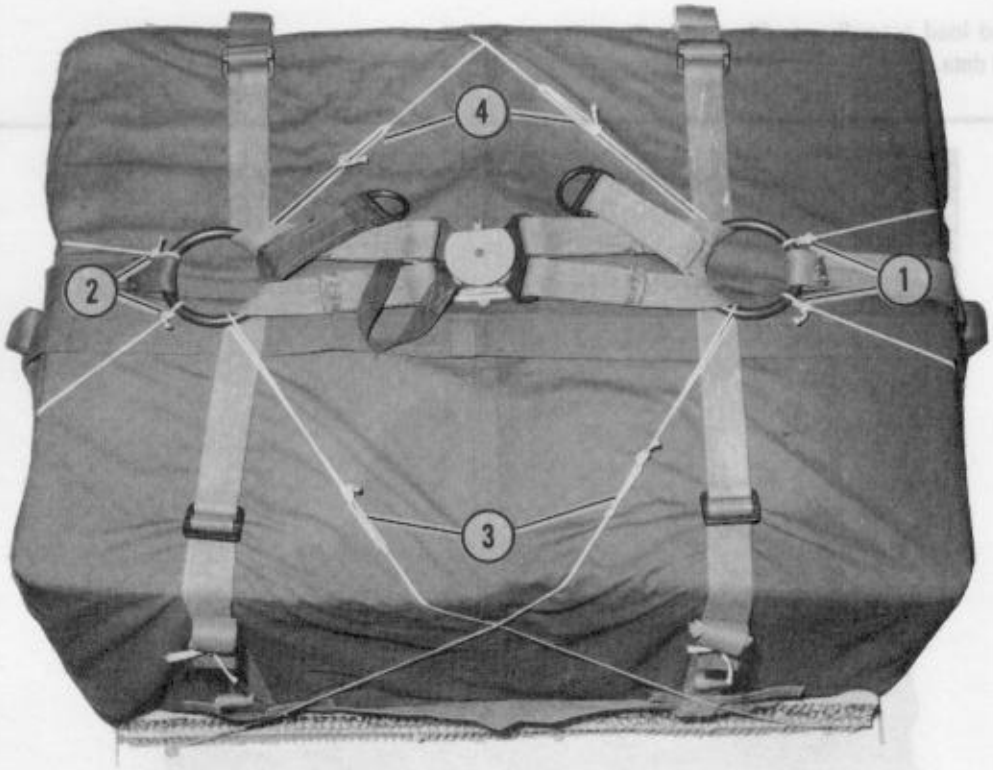
(1) Cut a 1/2- or 3/4-inch piece of plywood at least the size of the bottom of the load. If the load is to be dropped from Air Force aircraft, the plywood must be at least 42 inches wide. Place the plywood on a flat surface.

(2) Drill eight 1/2-inch holes as shown above.

(3) Pass a length of type III nylon cord through each set of holes. The length should be long enough to allow the running ends to be tied to the top of the load. If type III nylon cord is not available, use 1/2-inch tubular nylon webbing.

(4) If needed, place two layers of honeycomb (not shown) the size of the base of the load on the skid board.

Figure 6-4. Skid board prepared



(1) Tie the two lengths of type III nylon cord on the right side of the load to the top right O-ring with three half-hitch knots and a knot in the running end. These ties will not cross each other.

(2) Repeat step 1 using the lengths on the left side.

(3) Using the front right length of cord, cross it over the load and tie it to the left O-ring with a trucker's hitch knot and an overhand knot in the running end. Repeat with the left front length of cord to the right O-ring. Ties should form an "X."

(4) Repeat step 3 using the lengths on the rear.

Figure 6-5. Skid board secured

6-14. Installing Parachute

Install the T-10 modified cargo or the G-14 cargo parachute to the load according to Paragraph 5-4.

6-15. Marking Rigged Load

Mark the rigged load according to Chapter 1. Compute the rigged load data.

6-16. Equipment Required

Use the equipment listed in Table 6-2 to rig the load shown in Figure 6-6.

CAUTION

Make the final inspection required by Chapter 1 before the load leaves the rigging site. If the load includes hazardous material as defined in AFJMAN 24-204/TM 38-250, complete Shipper's Declaration for Dangerous Goods form.

RIGGED LOAD DATA	
Weight (without parachute)	200 - 500 pounds
Parachute	G-14

Figure 6-6. A-21 container load rigged for low-velocity ramp airdrop

Table 6-2. Equipment required for rigging the A-21 container load for low-velocity ramp airdrop

National Stock Number	Item	Quantity
1670-00-242-9173	Bag, cargo, A-21	1
4020-00-240-2146	Cord, nylon, type III, 550-pound	As required
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
1670-00-753-3928	Pad, energy-dissipating, honeycomb	As required
1670-00-999-2658	Parachute, cargo, G-14	1
	Plywood:	
5530-00-129-7777	1/2- by 48- by 96-in	1 sheet
	or	
5530-00-128-4981	3/4- by 48- by 96-in	1 sheet
8105-00-285-4744	Sandbag	As required
8305-00-268-2411	Webbing, cotton, 1/4-in, type I	As required

Section III
HIGH-VELOCITY AIRDROP

6-17. Description of Load

Typical A-21 loads are rigged for high-velocity airdrop from either the paratroop door or ramp of an aircraft. Typical loads include rations, water cans, small repair parts, and other small nonfragile items. The load shown in this section consists of rations and boxes filled with sand to increase weight. The load cannot exceed 500 pounds, excluding the weight of the parachute. The minimum weight will vary according to the parachute used. The load shown in this section is rigged with one 12-foot, high-velocity cargo parachute.

6-18. Preparing Drop Items

Prepare the drop items according to the load's sensitivity. Items should be well padded so items will not be damaged during airdrop. Items can be dropped in original container or repacked if necessary.

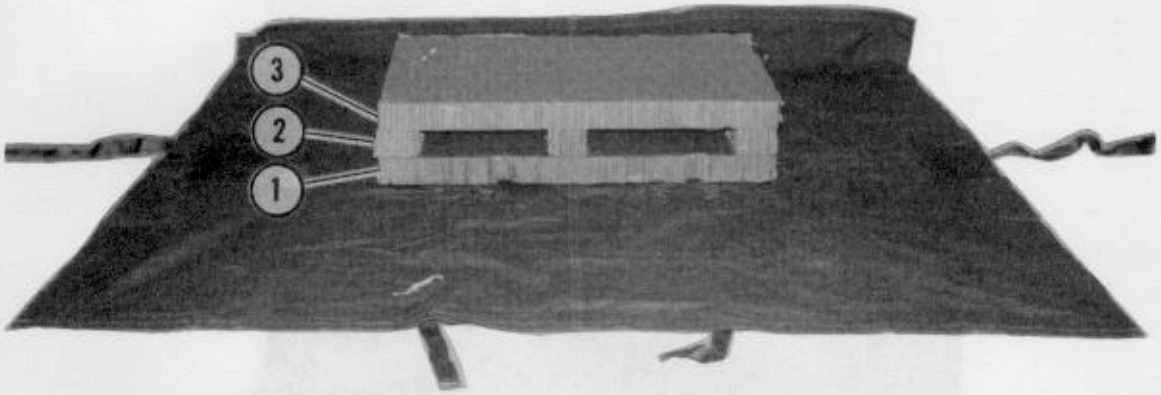
6-19. Preparing Skid Board

Prepare a skid board for ramp drop as shown in Figure 6-4. For paratroop door drops, the skid board is optional. When the load is dropped from the ramp on Air Force aircraft, the skid board must be 42 inches wide.

6-20. Positioning Honeycomb

Use honeycomb on paratroop door or ramp drops. When the skid board is not used, place the honeycomb inside the container when rigging the load. When the skid board is used, place honeycomb inside or outside the container. Prepare and position the honeycomb as shown in Figure 6-7.

Note: Glue the stack together.



(1) Cut one piece of honeycomb at least the size of the base of the load. Center it on the container. Glue it to the container if desired.

(2) Cut three pieces of honeycomb 3 inches wide and the length of the honeycomb cut in step 1. Center one piece on top of the first layer of honeycomb. Place one piece of honeycomb even with each side edge.

(3) Cut another piece of honeycomb the same size as in step 1, and place it on top of the second layer of honeycomb.

Figure 6-7. Honeycomb prepared and positioned

6-21. Positioning Container and Load

Position the container and load according to paragraph 6-3.

6-22. Rigging Container

Rig the container according to paragraph 6-4.

6-23. Securing Skid Board

Secure the skid board according to paragraph 6-13.

6-24. Installing Parachute

Install the parachute according to Chapters 3 and 5.

6-25. Marking Rigged Load

Mark the rigged load according to Chapter 1. Compute the rigged load data.

6-26. Equipment Required

Use the equipment listed in Table 6-3 to rig the load shown in Figure 6-8.

CAUTION

Make the final inspection required by Chapter 1 before the load leaves the rigging site. If the load includes hazardous material as defined in AFJMAN 24-204/TM 38-250, complete Shipper's Declaration for Dangerous Goods form.

RIGGED LOAD DATA

Parachute	Weight (without parachute)
Three 68-inch	151 - 500 pounds
* 12-foot, high-velocity cargo (shown)	151 - 500 pounds
15-foot (modified for high-velocity)	151- 500 pounds

* Primary parachute

Figure 6-8. A-21 container load rigged for high-velocity airdrop

Table 6-3. Equipment required for rigging the A-21 container load for high-velocity airdrop

National Stock Number	Item	Quantity
8040-00-273-8713	Adhesive, paste, 1-gal	As required
1670-00-242-9173	Bag, cargo, A-21	1
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
8135-00-664-6958	Cushioning material, packaging, cellulose wadding	As required
1670-00-753-3928	Pad, energy-dissipating, honeycomb	As required
1670-00-788-8666	Parachute, cargo, high-velocity, 12-ft	1
	Plywood:	
5530-00-129-7777	1/2- by 48- by 96-in	1 sheet
	or	
5530-00-128-4981	3/4- by 48- by 96-in	1 sheet
7510-00-266-6710	Tape, masking, 2-in	As required
	Webbing:	
8305-00-268-2411	Cotton, 1/4-in, type I	As required
8305-00-082-5752	Nylon, tubular, 1/2-in	As required

Section IV
HAARS

6-27. Description of Load

The A-21 typical container load rigged for delivery by HAARS requires a 30-inch pilot parachute, an altitude sensor parachute staging unit, a 70-inch shear strap, and a G-14 cargo parachute equipped with a 53-inch HAARS deployment line. Typical loads include rations, water cans, small repair parts, and other small nonfragile items. The A-21 load may be dropped from the paratroop door or off the ramp of an aircraft.

6-28. Rigging Container

Rig the container as a typical A-21 low-velocity load with skid board attached. Paragraphs 6-10 through 6-13 cover rigging the container.

6-29. Preparing and Installing Cargo Parachute

Prepare the G-14 cargo parachute according to TM 10-1670-266-13&P. Install the parachute according to Chapter 5.

6-30. Installing Altitude Sensor Parachute Staging Unit and Pilot Parachute

Install the altitude sensor parachute staging unit and 30-inch pilot parachute by adapting the procedures given in Figure 4-13.

6-31. Marking Rigged Load

Mark the rigged load according to Chapter 1 using the data given in Figure 6-9. If the load varies from the one shown in Figure 6-9, recompute the rigged load data.

6-32. Equipment Required

Use the equipment listed in Table 6-4 to rig the load shown in Figure 6-9.

CAUTION

Make the final inspection required by Chapter 1 before the load leaves the rigging site. If the load includes hazardous material as defined in AFJMAN 24-204/TM 38-250, complete Shipper's Declaration for Dangerous Goods form.

RIGGED LOAD DATA

Weight (without parachute)	200 - 500 pounds
Height (with parachute)	41 inches
Width	27 inches
Length	42 inches
Parachute	G-14

Figure 6-9. A-21 container load rigged for HAARS

Table 6-4. Equipment required for rigging an A-21 container load for HAARS

National Stock Number	Item	Quantity
1670-01-071-5022	Altitude sensor, parachute unit:	1
1377-01-064-4927	Cutter assembly	(1)
1670-01-064-4926	Sensor w retention line	(1)
	Bag:	
1670-00-242-9173	Cargo, A-21	1
1670-01-121-0954	Deployment w static line (HAARS) (for 30-inch parachute)	1
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
1670-01-121-0766	Line, deployment (HAARS)	1
1670-00-217-2421	Link assembly, link, L-bar type	5
1670-00-753-3928	Pad, energy-dissipating, honeycomb	As required
	Parachute:	
1670-00-999-2658	Cargo, G-14	1
1670-01-121-5819	Pilot, 30-in diam	1
5530-00-128-4981	Plywood, 3/4- by 48- by 96-in	1 sheet
	Strap:	
1670-00-738-5878	Connector, 60-in	2
1670-01-121-0767	Webbing, nylon (shear strap), 70-in (HAARS)	1
7510-00-266-6710	Tape, masking, 2-in	As required
8310-01-102-4478	Thread, cotton, ticket number 8/7	As required
	Webbing:	
8305-00-268-2411	Cotton, 1/4-in, type I	As required
	Nylon, tubular:	
8305-00-082-5752	1/2-in	As required
8305-00-268-2455	1-in	As required